

## FLEXIBILITY

The "Q'straint or M-series" system is very flexible in accommodating most wheelchair styles as shown below.

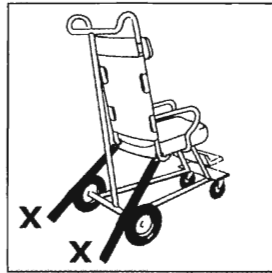


Figure 1.  
Child Stroller  
Wheelchair –  
Rear attachments

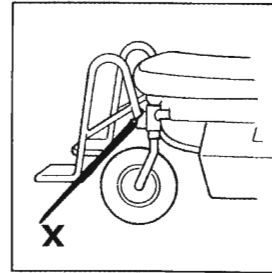


Figure 2.  
Standard Power  
Wheelchair –  
Front attachments

## MAINTENANCE

### Warnings:

- Inspect your Q'straint and M- series regularly.
- The Q'straint or M- series must be replaced if suspected to have been in use during impact or show any sign of damage or excessive wear and tear. Belts should be replaced if they have been worn during impact, even if the damage is not obvious.
- Prevent contamination of belt webbing from oil, gases, polishes and chemicals, in particular – battery acid.
- Report any damage, defect or difficulty to your supervisor.

## TRI-WHEELERS

(must use optional belt part no. Q5-5010)

Q'Straint recommends that Tri-Wheeler users transfer to an ambulatory seat. However, if this procedure is not possible, securement of the Tri-Wheeler and its occupant can be accomplished by using the optional Q'Straint rear middle belt Q5-5010 and fastening it to a solid frame member on the base of the Tri-Wheeler chair and then by following all regular Q'Straint securement instructions.

**NOTE:** Auxiliary wheelchair equipment should be effectively secured to the wheelchair or removed from the wheelchair and secured in the vehicle during transport so as to not break free and cause injury in an impact.

Whenever possible, items attached to the wheelchair in front of the passenger should be removed and secured separately during transportation to prevent potential injury to the passenger.

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*Supplying the world with safety.*

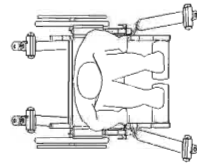
## Driver/Operator Instruction Guide

# THE Q'STRAIT & M-SERIES

**Wheelchair & Occupant Securement System**

## FRONT - REAR BELTS

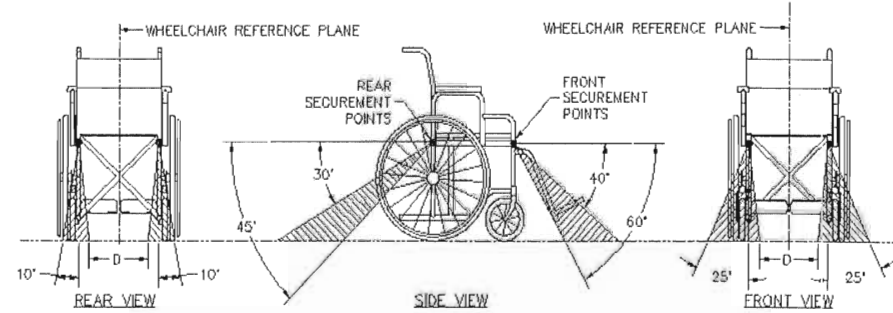
**STEP 1**



- INSURE STRAIGHT LINE FROM ANCHORAGE TO WHEELCHAIR ATTACHMENT
- SEE FIGURE 1 FOR PROPER BELT ANGLES
- ATTACH TO SOLID FRAME MEMBER. SEE FIGURE 2 FOR USE OF WEBBING LOOP ON AREAS THAT ARE HARD TO REACH WITH THE HOOK
- INSURE BELTS ARE PROPERLY TENSIONED
- TIEDOWN ANCHORAGE SHOULD BE INSTALLED WITH CENTER-TO-CENTER DISTANCE ACCORDING TO FIGURE 5
- SEE FIGURE 3 FOR IDEAL GEOMETRY TO ATTACH OUR HOOKS
- DO NOT ALLOW WEBBING TO BE TWISTED INSIDE THE RETRACTOR.

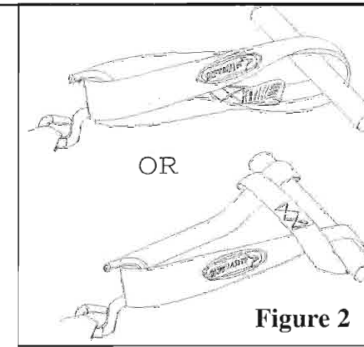
**NOTE:** Our recommended center-to-center distances are based on common wheelchair sizes. Exceptionally large or exceptionally small wheelchairs may require anchorage spacing that differs from our recommendation. Use the belt angles from figure 1 to determine exact placement of the tiedown in L-track or A-track

Rear 13" - 15" (330 - 380mm)  
Front 28" - 30" (711 - 762mm)  
Front to Rear 44" - 54" (1067 - 1370mm)



Preferred angles and location of tiedown straps from wheelchair securement points to vehicle anchor points. Angle front tie downs out for lateral stability when possible. D=12" (300 mm)

**Figure 1**



**Figure 2**



## PRE-BOARDING RECOMMENDATIONS

- Inspect and prepare all your "RESTRAINT" system belts and retractors
- Be sensitive to your passenger
- Be careful in handling the wheelchair
- Explain to your passenger what you are doing to make them feel comfortable with the process

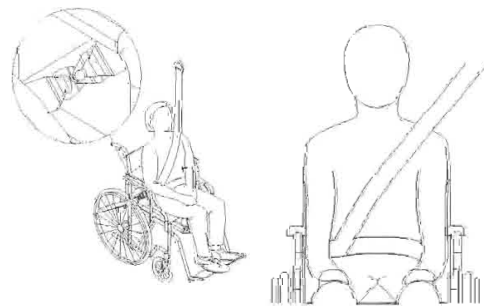
### List of items for each passenger and chair location:

- 4 wheelchair belts
- 1 lap and shoulder belt

**NOTE:** Do not alter any of the "RESTRAINT" system belts, retractors, or components. Always keep belts and retractors together as a complete kit.

## LAP - SHOULDER BELTS

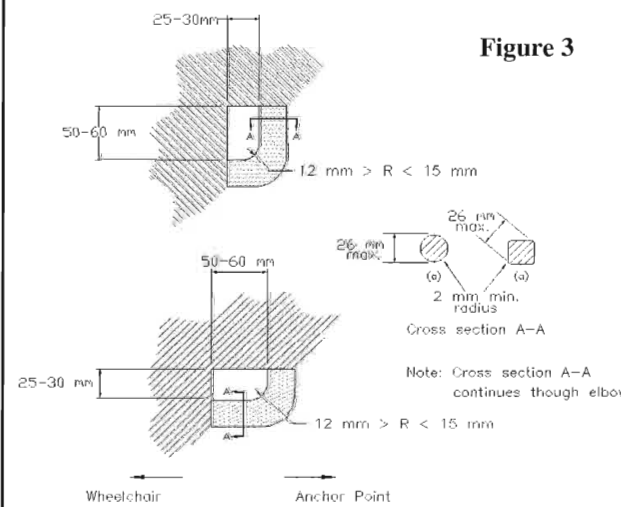
**STEP 2**



- ATTACH LAP AND SHOULDER BELT
- SEE FIGURE 4 FOR PROPER PLACEMENT

Belt should bear upon the bony structure of the body and should be worn low across the front of the pelvis with the junction between the lap and shoulder belts located near the passenger's hip. Adjust the belts as firmly as possible consistent with user comfort. Ensure that the belt is not twisted. Use height adjuster if applicable.

**Figure 4**

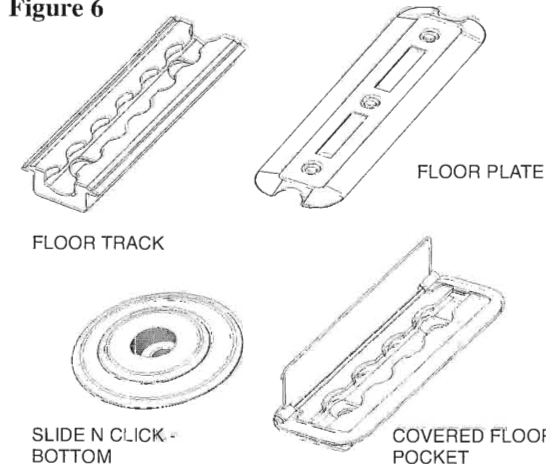


Required securement-point geometry, including minimum and maximum dimensions for the rectangular securement-point opening, and maximum dimensions and minimum radii of the structural members.

**Figure 3**

## FLOOR POCKETS

**Figure 6**



## SECUREMENT SYSTEM DAILY INSPECTION CHECKLIST

The following items, as a minimum, should be inspected on at least a daily basis;

- Check to ensure webbing is not cut, frayed, damaged or contaminated by polishes, oils or chemicals
- Check that metal parts are not worn, broken or cracked
- Check pin connector bushings to ensure they are not cracked, broken or missing
- Check that all mounting hardware, such as bolt, nuts, etc. are secure
- Check floor anchorages to ensure cleanliness and securement
- Check shoulder belt anchorages for proper securement and operation
- Check lap and shoulder belt webbing to ensure it is not cut, frayed, damaged or contaminated with polishes, oils or chemicals
- Check buckles for damage and ensure proper operation
- Check male buckle pin connector bushing to ensure it is not cracked, broken or missing
- Check any other parts of the securement system and accessories that may not be specifically indicated in this checklist, but are pertinent to a safe operational system.

## WTORS COMPLIANCE

The Q'strait & M-series (except when mounted on "A" track) comply with all applicable requirements of SAE J2249, including a frontal impact test conducted at 48 km/h, 20-g using a forward facing surrogate wheelchair with a mass of 85 kg and an ATD with a mass of 76.3 kg.

It has been dynamically tested with an anthropomorphic test dummy restrained by both pelvic and upper-torso restraints; use of only a pelvic restraint may compromise the performance of the system.

Use only with forward facing wheelchairs

Auxiliary wheelchair equipment should be secured to the wheelchair or removed from the wheelchair and secured in the vehicle during transportation.

Whenever possible, items attached to the wheelchair in front the occupant should be removed and secured separately during transportation.

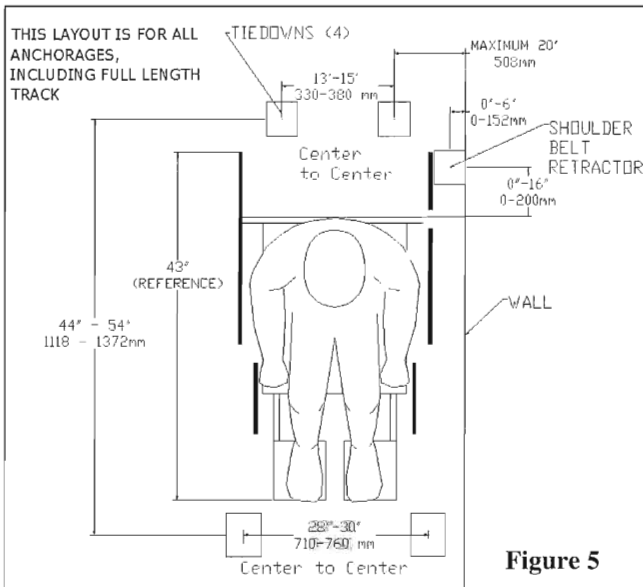
See figure 6 for images of common anchorage hardware

The "RESTRAINT" system should be used in accordance with these instructions

- Occupant restraints should not be held away from the body by wheelchair armrests or wheels
- Never rely on the chair's own lap belt unless it is an approved occupant restraint.
- Make sure belts are kept clean and coiled within the retractor when not in use
- Make sure you use your own driver's seat belt

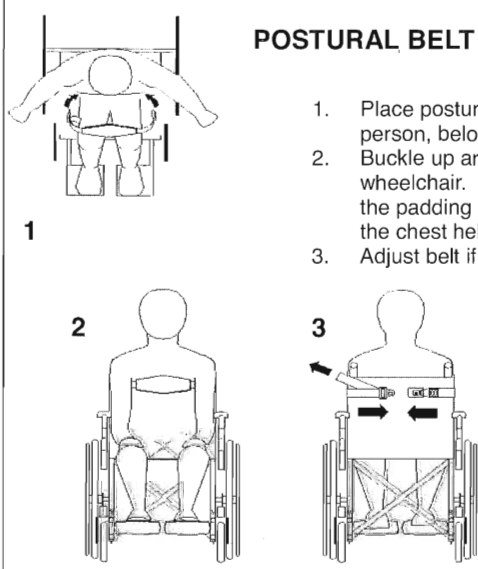
## WTORS MAINTENANCE

- Clean the webbing periodically with mild soap and water. After cleaning, fully extend the belts and position them to prevent water from entering the retractor until completely dry. Take care to prevent contamination of the webbing with polishes, oils and chemicals, particularly battery acid.
- Webbing and components should be inspected, cleaned, and maintained regularly.
- Frayed, contaminated and damaged webbing should be replaced.
- Broken and worn parts should be replaced
- WTORS components, including anchorages that are suspected to have been in use during an impact from which the vehicle must be towed, should be replaced.
- Clean bolt threads and re-apply permanent thread locker if bolts are adjusted.**



**Figure 5**

## POSTURAL BELT



- Place postural belt around person, below the arms.
- Buckle up around the wheelchair. Make sure the padding is located at the chest height.
- Adjust belt if necessary

## FEATURES AND FUNCTIONS OF THE Q'STRAIT AND M-SERIES

